

**BRIEF  
PASSENGER CAR  
DATA**

**1961**



**ETHYL CORPORATION**



# **BRIEF PASSENGER CAR DATA**



**1961**

**ETHYL CORPORATION**  
100 Park Avenue  
New York 17, New York

## **RESEARCH LABORATORIES**

1600 West Eight Mile Road  
Detroit 20, Michigan

P.O. Box 341

Baton Rouge 1, Louisiana

## **REGIONAL OFFICES**

100 Park Avenue, New York 17, N. Y.

332 South Michigan Ave., Chicago 4, Ill.

National Bank of Tulsa Bldg., Tulsa 3, Okla.

1141 Huntley Drive, Los Angeles 26, Calif.

**In Canada: ETHYL CORPORATION OF CANADA LIMITED**  
48 St. Clair Avenue West, Toronto 7, Ontario, Canada

# TABLE OF CONTENTS

	Page
Notice Page and General Notes .....	5
List of Abbreviations .....	6
Summary of Characteristics .....	7
Trends of American Passenger Car Engine Design .....	7
Buick .....	8
Cadillac .....	9
Chevrolet .....	10
Chevrolet Corvair and Corvette .....	11
Chrysler .....	12
Comet .....	13
DeSoto .....	16
Dodge Dart .....	14
Dodge and Dodge Lancer .....	15
Imperial .....	17
Ford and Ford Falcon .....	18
Ford .....	19
Lincoln Continental .....	20
Mercury .....	21
Oldsmobile .....	22
Oldsmobile .....	23
Plymouth Valiant and Plymouth 6 .....	24
Plymouth V-8 .....	25
Pontiac Tempest .....	26
Pontiac .....	27
Rambler American .....	28
Rambler .....	29
Studebaker .....	30
Thunderbird .....	31
Spark Plug Heat Range Comparisons .....	32
Spark Plug Heat Range Comparisons .....	33
Trend in Antiknock Quality, Regular Gasoline ....	34
Trend in Antiknock Quality, Premium Gasoline ...	35
Automatic Transmissions .....	36
Automatic Transmissions .....	37
Automatic Transmissions .....	38

## NOTICE

The specifications and adjustments contained in this booklet have been compiled by the Research Laboratories of the Ethyl Corporation from information supplied by manufacturers of motor cars, ignition apparatus, spark plugs, etc. None of this information represents the results of tests at the Research Laboratories of the Ethyl Corporation.

This information covers the essential characteristics, in ready reference form, of the 1961 passenger car models. It is correct at date of publication, but changes may be made from time to time by motor car manufacturers.

Data on horsepower, torque, bmep, etc., are those given by the manufacturer. Methods and technique of testing differ in various engineering departments, so these data are frequently not comparable for different makes of cars.

## GENERAL NOTES

### Spark Plugs

The spark plug installed and recommended by the factory is shown first in the specifications with the corresponding AC, Autolite or Champion spark plug shown as an alternate. These plugs are designed for average driving conditions. For heavy-duty or high-speed driving, it may be necessary to use a colder plug in order to obtain satisfactory spark plug life. The necessity for a colder plug is indicated by rapid electrode wear.

It is sometimes necessary to change to a plug which is hotter than the factory equipment plug for very light service, especially in metropolitan areas. If an engine is not pumping oil and the ignition system is in good condition but the spark plug consistently fouls — the need for a hotter plug is indicated. Caution should be exercised in using hotter than standard plugs as they are likely to cause preignition if the vehicle is subjected to high-speed driving.

### Ignition Timing

Ignition timing is given in crankshaft degrees and is factory setting. All distributors are provided with an adjustment enabling the ignition timing to be reset without disturbing the calibration of the distributor advance mechanism. Retarded ignition timing will eliminate or reduce detonation but will result in decreased performance and fuel economy. Also, in most cases, an ignition setting slightly in advance of the factory setting will result in additional performance and economy, although such an ignition setting will require a fuel of higher antiknock value than the standard setting.

### Carburetors

Carburetors should not be adjusted or jets changed except by qualified mechanics. Correct fuel (or float) levels are extremely important to satisfactory performance and fuel economy — factory specifications should be strictly maintained.

### Transmissions and Axle Ratio

The transmissions which are available as standard or optional equipment are listed with the axle ratios which are used as standard equipment with each type of transmission. In some instances additional axle ratios are available as optional equipment. A description of the automatic transmissions is given on pages 36, 37 and 38.

### Shipping Weight

The shipping weight is given for the four-door sedan with standard equipment. The weight of optional equipment such as radios, heaters, and automatic transmissions, etc., is not included. If the automatic transmission is included as standard equipment on the car, its weight is included in the shipping weight.

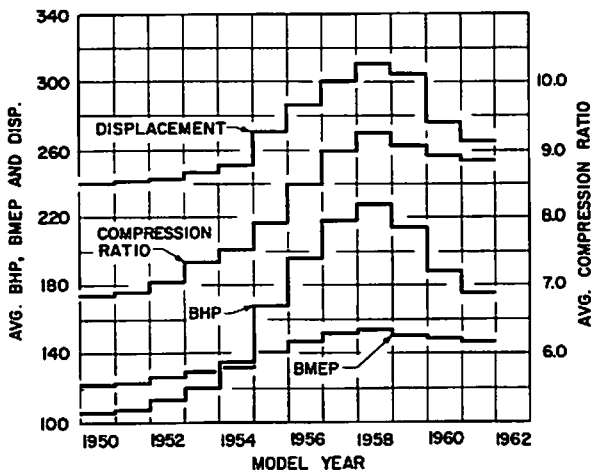
# LIST OF ABBREVIATIONS

AC .....	AC Spark Plug Division, GMC
Adv .....	Advance
AL .....	The Electric Autolite Company
Al A .....	Aluminum Alloy
Bbl .....	Barrel
BHP .....	Brake Horsepower
Bmep .....	Brake mean effective pressure
BTC .....	Before Top Center
C .....	Cold (valve adjustment)
Car .....	Carter (carburetors)
CAS .....	Cast Austenitic Steel
Centrif .....	Centrifugal
Champ .....	Champion Spark Plug Company
CI .....	Cast Iron
Clr .....	Clearance
CNS .....	Chrome Nickel Steel
DD .....	Downdraft
Deg .....	Degrees
DR .....	Delco-Remy Division, GMC
Eng .....	Engine
Eqpt .....	Equipment
Exh .....	Exhaust
H .....	Hot (valve adjustment)
Hyd Lifters .....	Hydraulic Lifters
I .....	In-head (overhead valves)
Ind .....	Independent
Int .....	Intake
L .....	L-head
Max .....	Maximum
NA .....	Not Available
Neg .....	Negative
No. Cyl .....	Number of Cylinders
OD .....	Overdrive
Opt .....	Optional
Recm Press .....	Recommended Pressure (tires)
RP .....	Rochester Products (carburetors)
Sil .....	Silchrome
Sgl .....	Single
Std .....	Standard
Strom .....	Stromberg Carburetor Company
TDC .....	Top Dead Center
Tor .....	Torsion Bar
Trans .....	Transmission
Vac .....	Vacuum

**SUMMARY OF CHARACTERISTICS**  
**1961 UNITED STATES PASSENGER CARS**  
**Specifications for Four-Door Sedans**

	1960	1961	Change
Number of Makes.....	18	16	-2
Weighted Average Compression Ratio*.....	8.91	8.84	-0.07
Highest Standard Compression Ratio.....	10.5	10.5	....
Lowest Standard Compression Ratio.....	8.0	8.0	....
Weighted Average Displacement, Cubic Inches*.....	275.9	264.9	-11.0
Weighted Average Max. Brake Horsepower*..	188.2	175.8	-12.4
Weighted Average Brake Mean Effective Pressure* .....	148.9	146.6	-2.3

**TRENDS OF AMERICAN PASSENGER CAR ENGINE DESIGN**  
**WEIGHTED AVERAGES BASED ON PRODUCTION VOLUME**



\*These characteristics are presented in a different form than that used in previous issues of this booklet. In this booklet the specifications for each make and model car have been weighted in accordance with their percentage of the model year production. Production statistics have been used for all years up to 1960 and have been estimated for 1961. The data presented in previous issues were based on the numerical average of the characteristics of each make and model car without regard to the number of units produced.

# BUICK

CAR MODEL	Special	LeSabre	Invicta and Electra
<b>ENGINE</b>			
No. Cyl-Head Type .....	V-8-I	V-8-I	V-8-I
Bore and Stroke (in).....	3.5 x 2.8	4.125 x 3.4	4.188 x 3.64
Displacement (cu in) .....	215	364	401
Max Horsepower @ rpm..	155 @ 4600	250 @ 4400 (1)	325 @ 4400
Max Torque, lb-ft @ rpm...	220 @ 2400	384 @ 2400 (1)	445 @ 2800
Max bmep, lb/sq in.....	154.0	159.1	167.3
Compression Ratio .....	8.8	10.25 (1)	10.25
Material-Cyl Head, Block..	Al A; Al A	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt.	AC 45FFS	AC 44S	AC 44S
Alternate.....	AL AE-52	AL A42, Champ J-12Y	
Spark Plug Gap (in) .....	.030 to .035	.030 to .035	.030 to .035
Firing Order .....	1-8-4-3-6-5-7-2		1-2-7-8-4-5-6-3
Distributor Model .....	DR 1110977	DR 1110961 (2)	DR 1110961
Breaker Gap (in) .....	.013 to .019	.013 to .019	.013 to .019
Cam Angle (degrees).....	29 to 31	29 to 31	29 to 31
Basic Timing, °BTC .....	7.5 (3)	12	12
Battery—Volts, Ground ...	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in) .....	Int 1.50; 0.383 Exh 1.31; 0.383	1.875; 0.443 1.50; 0.439	1.875; 0.439 1.50; 0.441
Tappet Ctr-Valve Material .....	Int Exh	Hydraulic Lifters; SAE 1050 or 1047 Hydraulic Lifters: Sil 10	
<b>CARBURETOR</b>			
Make, Model .....	RP 2GC	RP 2GC or Strom WW (1)	RP4GC or Car AFB
Type and Size (in) .....	2 Bbl; 1.31	2 Bbl; 1.44 (1)	4 Bbl; 1.56 Pri, 1.69 Sec.
<b>TRANSMISSION</b>			
Standard .....	Manual	Turbine Drive	Turbine Drive
Optional .....	Dual Path Turbine Drive		
Axle Ratio with Manual .....	3.36		
Automatic .....	3.08	3.07 (4)	3.23
<b>CAPACITY</b>			
Oil (Refill) .....	(qt) 4	4	4
Water (incl heater) ...	(qt) 13.5	18.5	18.5
Manual Transmission... (pt)	2.25		
Auto. Trans. .... (Refill-qt)	6	12	12
Rear Axle .....	(pt) 3	6.5	6.5
Gasoline .....	(gal) 16	20	20
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread. (in)	112; 56, 56	123; 62, 61	126; 62, 61 (5)
Length-Width .....	(in) 188.4; 71.3	213.2; 78	219.2; 78 (5)
Turning Diam. ....	(ft) 38.9	48.6	48.1 (5)
Shipping Weight .....	(lb) 2632	4102	4417
Suspension-Frt, Rear .....	Ind. Coil Springs; Trailing Link Coil Springs		
Tire Size—Recm Press. (lb)	6.50x13-22-22	7.60x15-24-24	8.00x15-24-24 (5)

(1) Optional "Low Compression" engine available with 235 bhp @ 4400 rpm, 375 lb-ft @ 2400 rpm and 9.0 CR. Optional "Power Package" engine also available with 4-bbl AFB Carter carburetor, 10.25 CR, 300 bhp @ 4400; 405 lb-ft @ 2800.

(2) DR 1110962 with optional "Low Compression" engine.

(3) Ignition timing set at 1050 rpm with vacuum advance disconnected.

(4) 3.23 axle ratio with "Power Package" engine.

(5) Data given for Electra. All general data on Invicta same as on LeSabre except for the shipping weight which is 4179 lb.



# CADILLAC

CAR MODEL	Series 60, 62, 63	Fleetwood 75
<b>ENGINE</b>		
No. Cyl-Head Type	V-8-I	V-8-I
Bore and Stroke (in)	4.00 x 3.875	4.00 x 3.875
Displacement (cu in)	390	390
Max Horsepower @ rpm	325 @ 4800	325 @ 4800
Max Torque, lb-ft @ rpm	430 @ 3100	430 @ 3100
Max bmep, lb/sq in	166.3	166.3
Compression Ratio	10.5	10.5
Material-Cyl Head, Block	CI; CI	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.	AC 44	AC 44
Alternate		AL A42; Champ J-12Y
Spark Plug Gap (in)	.035	.035
Firing Order	1 - 8 - 4 - 3	6 - 5 - 7 - 2
Distributor Model	DR 1110932	DR 1110932
Breaker Gap (in)	.016	.016
Cam Angle (degrees)	28 to 32	28 to 32
Basic Timing, °BTC	5	5
Battery—Volts, Ground	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in)	Int 1.875; 0.451	1.875; 0.451
	Exh 1.50; 0.451	1.50; 0.451
Tappet Clr—Valve Material	Int Hydraulic Lifters; SAE 1041 Aluminized	Hydraulic Lifters; SAE 1041 Aluminized
	Exh Hydraulic Lifters; SAE 1041 Aluminized	Hydraulic Lifters; SAE 1041 Aluminized
<b>CARBURETOR</b>		
Make, Model	RP 4GC or Car AFB	RP 4GC or Car AFB
Type and Size (in)	4 Bbl; 1.44 Pri, 1.69 Sec	4 Bbl; 1.44 Pri, 1.69 Sec
<b>TRANSMISSION</b>		
Standard	Hydra-Matic	Hydra-Matic
Optional		
Axle Ratio with Hydra-Matic	2.94; 3.21 Opt (1)	3.36; 3.77 Opt
<b>CAPACITY</b>		
Oil (Refill) (qt)	4	4
Water (Incl heater) (qt)	19.33	20.89
Manual Transmission (pt)		
Auto. Trans. (Refill-qt)	9	9
Rear Axle (pt)	5	5
Gasoline (gal)	21	21
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread (in)	129.5; 61, 61	149.8; 61, 61
Length-Width (in)	222; 79.8	242.3; 80.6
Turning Diam (ft)	45.7	51.2
Shipping Weight (lb)	4680 (62)	5390
Suspension-Frt, Rear	Ind. Coil Springs; Trailing Arm Coil Springs	Ind. Coil Springs; Trailing Arm Coil Springs
Tire Size—Recm Press (lb)	8.00x15-26-26 (2)	8.20x15-24-24

(1) 3.21 Standard on air conditioned cars.

(2) All white sidewall tires are 8.20x15.

**CHEVROLET  
CAR MODEL**
**Six**
**Biscayne, Bel Air and Impala  
283 V-8**
**348 V-8**
**ENGINE**

No. Cyl-Head Type	6-I	V-8-I	V-8-I
Bore and Stroke (in)	3.56 x 3.94	3.875 x 3.0	4.125 x 3.25
Displacement (cu in)	235.5	283	348
Max Horsepower @ rpm	135 @ 4000	170 @ 4200 (1)	250 @ 4400 (2)
Max Torque, lb-ft @ rpm	217 @ 2200	275 @ 2200 (1)	355 @ 2800 (2)
Max bmep, lb/sq in	139.0	146.5	153.8
Compression Ratio	8.25	8.5 (1)	9.5 (2)
Material-Cyl Head, Block	CI; CI	CI; CI	CI; CI

**IGNITION**

Spark Plug—Factory Eqpt.	AC 44	AC 44	AC 44N (3)
Alternate	A42, J-9Y	A42, J-12Y	AC 42, N-12Y
Spark Plug Gap (in)	.035	.035	.035
Firing Order	1-5-3-6-2-4	1-8-4-3-2	1-8-5-7-2
Distributor Model	DR 1112403	DR 1110947 (4)	DR 1110948 (3)
Breaker Gap (in)	.019	.019	.019
Cam Angle (degrees)	28 to 35	26 to 33	26 to 33
Basic Timing, °BTC	5	4	8 (3)
Battery—Volts, Ground	12, Negative	12, Negative	12, Negative

**VALVES**

Size and Lift (in)	Int 1.875; 0.328 Exh 1.50; 0.328	1.72; 0.334 1.50; 0.334	1.94; 0.401 1.66; 0.412
Tappet Ctr-Valve			
Material	Int Hydraulic Lifters; 1041 Exh Hydraulic Lifters; 21-4N		Hyd. Lifters; 8440 Hyd. Lifters; 21-4N

**CARBURETOR**

Make, Model	RP BC	RP 2GC (1)	Car or RP (2)
Type and Size (in)	Sgl; 1.56	2 Bbl; 1.44	4 Bbl; 1.44

**TRANSMISSION**

Standard	Manual	Manual	Manual
Optional	Powerglide	Powerglide or Turboglide	Turboglide
Axle Ratio with			
Manual	3.36	3.36	3.36; 3.08 4 Spd.
Overdrive	3.70	3.70	
Powerglide	3.36	3.08	
Turboglide		3.36	3.08

**CAPACITY**

Oil (Refill)	(qt) 5	4	4
Water (incl heater)	(qt) 18	18.5	22
Manual Transmission	(pt) 2 (5)	2 (5)	2
Auto. Trans. (Refill-qt)	4.5	4.5 PG	2 TG
Rear Axle	(pt) 4	4	4
Gasoline	(gal) 20, 22 Opt	20, 22 Opt	20, 22 Opt

**GENERAL DATA (Four-Door Sedan)**

Wheelbase-F&R Tread (in)	119; 60.3, 59.3	119; 60.3, 59.3	119; 60.3, 59.3
Length-Width (in)	209.3; 78.4	209.3; 78.4	209.3; 78.4
Turning Diam. (ft)	43.6	43.7	43.7
Shipping Weight (lb)	3515 (6)	3520 (6)	3678 (6)
Suspension-Frt, Rear	Ind. Coil Springs; Trailing Link Coil Springs		
Tire Size—Recm Press. (lb)	7.50x14-24-24	7.50x14-24-24	7.50x14-24-24

- (1) With optional 4-bbl carburetor and 9.5 CR, 230 bhp @ 4800 rpm, 300 lb-ft @ 3000.
- (2) With optional three 2-bbl carburetors 280 bhp @ 4800, 355 lb-ft @ 3200. With Carter AFB 4-bbl carb. 305 bhp @ 5200, 355 lb-ft @ 3400. With manual transmission, special camshaft and 11.25 CR, 340 bhp @ 5800, 362 lb-ft @ 3600 with 4-bbl carb. and 350 bhp @ 6000, 364 lb-ft @ 3600 with 3-2 bbl carburetor.
- (3) Optional 340 bhp and 350 bhp engines use AC 43N spark plugs and DR 1110919 distributor with 12°BTC basic timing.
- (4) Delco-Remy 1110946 distributor used on 9.5 CR 4-bbl carburetor engine.
- (5) One pint additional with overdrive.
- (6) Weight given for Bel Air 4-door sedan with manual transmission.

**Brief Passenger Car Data for 1961**
**January 1, 1961**

**CHEVROLET**

CAR MODEL	Corvair 500-700-800	Corvette
<b>ENGINE</b>		
No. Cyl-Head Type .....	Horizontal Opposed 6-1	V-8-1
Bore and Stroke (in) .....	3.4375 x 2.6	3.875 x 3.0
Displacement (cu in) .....	145	283
Max Horsepower @ rpm .....	80 @ 4400 (1)	230 @ 4800 (2)
Max Torque, lb-ft @ rpm .....	128 @ 2300 (1)	300 @ 3000 (2)
Max bmep, lb/sq in .....	133.1	159.9
Compression Ratio .....	8.0	9.5 (2)
Material-Cyl Head, Block .....	Al A; Al A with CI cyl.	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt. ....	AC 46-FF	AC 44
Alternate .....	AE 82, UL-15Y	A42, J-12Y
Spark Plug Gap (in) .....	.035	.035
Firing Order .....	1-4-5-2-3-6	1-8-4-3-6-5-7-2
Distributor Model .....	DR 1110258 (3)	DR 1110946 (4)
Breaker Gap (in) .....	.019	.019
Cam Angle (degrees) .....	32 to 34	26 to 33
Basic Timing, °BTC .....	4 (5)	4 (6)
Battery—Volts, Ground .....	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in) .....	Int 1.34; 0.314 Exh 1.24; 0.344	1.72; 0.399 1.50; 0.399
Tappet Clr—Valve Material. Int	Hyd. Lifters; 3140	Hyd. Lifters; 8440
Exh	Hyd. Lifters; 21-4N	Hyd. Lifters; 21-4N
<b>CARBURETOR</b>		
Make, Model .....	RP, Model H	Carter WCFB
Type and Size (in) .....	2 Sgl; 1.25	4 Bbl; 1.31 (2)
<b>TRANSMISSION</b>		
Standard .....	Manual (7)	3-Spd Manual (7)
Optional .....	Corvair Powerglide	Powerglide
Axis Ratio with		
Manual .....	3.27; 3.55, 3.89 Opt	3.36 (3Spd); 3.70 (4Spd)
Powerglide .....	3.27; 3.55, 3.89 Opt	3.55
<b>CAPACITY</b>		
Oil (Refill) .....	(qt) 4	5
Water (incl heater) .....	(qt) Air cooled	16.5
Manual Transmission .....	(pt) 1.9	2 (7)
Auto. Trans. .... (Refill-qt)	3	4.5
Rear Axle .....	(pt) 3.1	4
Gasoline .....	(gal) 14	16.4
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread .....	(in) 108; 54, 54	102; 57, 59
Length-Width .....	(in) 180; 67	176.7; 70.4
Turning Diam .....	(ft) 41.4	38.7
Shipping Weight .....	(lb) 2355-500; 2380-700	2905 Convertible
Suspension-Frt, Rear .....	Ind. Coll; Swing Axle	Ind. Coll; Semi-elliptic
Tire Size—Recm Press .....	(lb) 6.50x13-15-26	6.70x15-24-24

- 98 bhp @ 4600 rpm and 132 lb-ft @ 3000 rpm with special camshaft optional.
- The following engines are optional.
 

Optional engine	BHP @ RPM	Torque @ RPM	CR
2-4 Bbl Carb.	245 @ 5000	300 @ 3800	9.5
2-4 Bbl, Special Cam	270 @ 6000	285 @ 4200	9.5
Fuel Injection	275 @ 5200	305 @ 4400	11.0
Fuel Injection (Sp. Cam)	315 @ 6200	295 @ 5100	11.0
- DR 1110259 with Powerglide transmission; DR 1110260 with optional 98 bhp engine.
- DR 1110891 with dual 4-bbl carb; DR 1110915 with fuel injection; DR 1110914 with fuel injection and special cam.
- 13°BTC with automatic transmission.
- 12°BTC with 2-4 bbl carbs; 8°BTC with fuel injection, 18°BTC with fuel injection and special cam.
- Four-speed manual optional.

# CHRYSLER

CAR MODEL	Newport	Windzor	New Yorker
<b>ENGINE</b>			
No. Cyl-Head Type .....	V-8-I	V-8-I	V-8-I
Bore and Stroke (in).....	4.12 x 3.38	4.25 x 3.38	4.18 x 3.75
Displacement (cu in) .....	361	383	413
Max Horsepower @ rpm....	265 @ 4400	305 @ 4600	350 @ 4600 (1)
Max Torque, lb-ft @ rpm...	380 @ 2400	410 @ 2400	470 @ 2800 (1)
Max bmep, lb/sq in .....	158.7	161.4	171.6
Compression Ratio .....	9.0	10.0	10.1
Material-Cyl Head, Block..	CI; CI	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt..	AL A42	AL A42	AL A42
Alternate.....		Champ J-12Y, AC 448	
Spark Plug Gap (in) .....	.035	.035	.035
Firing Order .....		1 - 8 - 4 - 3 - 6 - 5 - 7 - 2	
Distributor Model .....	AL IBP-4005-E	AL IBP-4005-E	2095530
Breaker Gap (in) .....	.014 to .019	.014 to .019	.014 to .019
Cam Angle (degrees) .....	27 to 32	27 to 32	27 to 32
Basic Timing, °BTC .....	10	10	10
Battery—Volts, Ground ...	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in).....Int	2.08; 0.390	2.08; 0.390	2.08; 0.390
Exh .....	1.60; 0.390	1.60; 0.390	1.60; 0.390
Tappet Ctr-Valve			
Material .....	Int	Hydraulic Lifters; 1041 Aluminized	
Exh .....		Hydraulic Lifters; 21-4N	
<b>CARBURETOR</b>			
Make, Model .....	Strom WWC3	Car BBD	Car AFB
Type and Size (in) .....	2 Bbl; 1.56	2 Bbl; 1.56	4 Bbl; Pri 1.44, Sec. 1.56
<b>TRANSMISSION</b>			
Standard .....	Manual	Manual	TorqueFlite
Optional .....	TorqueFlite	TorqueFlite	
Axle Ratio with			
Manual .....	3.23	3.23	
TorqueFlite .....	2.93; 3.23 Opt	2.93; 3.23 Opt	2.93; 3.23 Opt
<b>CAPACITY</b>			
Oil (Refill) .....	(qt) 5	5	5
Water (incl heater)....	(qt) 17	17	17
Manual Transmission....	(pt) 4.25	4.25	
Auto. Trans..... (Refill-qt)	11	11	11
Rear Axle .....	(pt) 4	4	4
Gasoline .....	(gal) 23	23	23
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread. (in)	122; 61, 59.7	122; 61, 59.7	128; 61.2, 60
Length-Width .....	(in) 215.6; 79.4	215.6; 79.4	219.8; 79.4
Turning Diam. ....	(ft) 46.4	46.4	49.6
Shipping Weight .....	(lb) 3710	3730	4055
Suspension-Frt, Rear .....		Independent Tor Bar; Semi-elliptic	
Tire Size—Recm Press. (lb)		8.00x14-24-22	8.50x14-24-23

- (1) The C300G model uses a special engine with ram manifold, two 4-bbl carburetors and special camshaft, 375 bhp @ 5000, 495 lb-ft @ 2800 rpm. An optional engine is available with two 4-bbl carburetors and a special camshaft which develops 400 bhp @ 5200, 465 lb-ft @ 3600 rpm.

CAR MODEL	85 BHP Std. Engine	Optional 101 Engine
<b>ENGINE</b>		
No. Cyl-Head Type .....	6-1	6-1
Bore and Stroke (in) .....	3.50 x 2.50	3.50 x 2.94
Displacement (cu in) .....	144.3	170
Max Horsepower @ rpm .....	85 @ 4200	101 @ 4400
Max Torque, lb-ft @ rpm .....	134 @ 2000	156 @ 2400
Max bmep, lb/sq in .....	140.0	138.4
Compression Ratio .....	8.7	8.7
Material-Cyl Head, Block .....	CI; CI	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt. ....	Champ F-14Y	Champ F-14Y
Alternate .....	AL BF82, AC 85TS	AL BF82, AC 85TS
Spark Plug Gap (in) .....	.032 to .036	.032 to .036
Firing Order .....	1 - 5 - 3	6 - 2 - 4
Distributor Model .....	CODF-12127-A	CIDF-12127-B
Breaker Gap (in) .....	.024 to .026	.024 to .026
Cam Angle (degrees) .....	35 to 38	35 to 38
Basic Timing .....	4°BTC Manual Trans.; 10°BTC Automatic	
Battery—Volts, Ground .....	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in) .....	Int 1.47; 0.344	1.53; 0.344
Exh 1.27; 0.344		1.27; 0.344
Tappet Clr—Valve Material. Int	.018"H; SAE 1047 Aluminized	
Exh	.018"H; Cast Austenitic Steel	
<b>CARBURETOR</b>		
Make, Model .....	Holley	Holley
Type and Size (in) .....	Sgl; 1.44	Sgl; 1.44
<b>TRANSMISSION</b>		
Standard .....	Manual	Manual
Optional .....	Fordomatic	Fordomatic
Axle Ratio with		
Manual .....	3.50	3.20; 3.50 Opt
Automatic .....	3.50	3.20; 3.50 Opt
<b>CAPACITY</b>		
Oil (Refill) .....	(qt) 3.5	3.5
Water (incl heater) .....	(qt) 9.3	9.3
Manual Transmission .....	(pt) 2.5	2.5
Auto. Trans. (Refill-qt) .....	6.25	6.25
Rear Axle .....	(pt) 2.5	2.5
Gasoline .....	(gal) 14	14
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread .....	(in) 114; 55, 54.5	114; 55, 54.5
Length-Width .....	(in) 194.8; 70.4	194.8; 70.4
Turning Diam .....	(ft) 42.4	42.4
Shipping Weight .....	(lb) 2411	2417
Suspension-Frt, Rear .....	Independent Coil Springs; Semi-elliptic	
Tire Size—Recm Press .....	(lb) 6.00x13-24-24	6.00x13-24-24

# DODGE DART

CAR MODEL	Seneca, Pioneer and Phoenix		Power Option
	6-Cyl	V-8	
ENGINE			
No. Cyl-Head Type .....	6-1	V-8-1	V-8-1
Bore and Stroke (in) .....	3.4 x 4.125	3.91 x 3.31	3.91 x 3.31
Displacement (cu in) .....	225	318 (1)	318
Max Horsepower @ rpm...	145 @ 4000	230 @ 4400 (1)	280 @ 4400
Max Torque, lb-ft @ rpm..	215 @ 2800	340 @ 2400 (1)	345 @ 2800
Max bmep, lb/sq in .....	144.1	161.2	163.6
Compression Ratio .....	8.2	9.0 (1)	9.0
Material-Cyl Head, Block..	CI; CI	CI; CI	CI; CI
IGNITION			
Spark Plug—Factory Eqpt..	AL AG-52	AL A42	AL A42
Alternate .....	UN-12Y, 45XLS	Champ J-12Y, AC 44S	
Spark Plug Gap (in) .....	.035	.035	.035
Firing Order .....	1-5-3-6-2-4	1-8-4-3-6-5-7-2	
Distributor Model .....	2095270	2095647 (3)	1889710
Breaker Gap (in) .....	.017 to .023	.014 to .019	.014 to .019
Cam Angle (degrees) .....	40 to 45	27 to 32	27 to 32
Basic Timing, °BTC .....	2.5 (2)	5 (3)	10
Battery—Volts, Ground ...	12, Negative	12, Negative	12, Negative
VALVES			
Size and Lift (in) .....	Int 1.62; 0.361	1.84; 0.370	1.84; 0.390
	Exh 1.36; 0.344	1.56; 0.368	1.56; 0.388
Tappet Clr-Valve .....			
Material .....	Int .020"H; 21-4N	.010"H; SAE 1041	.018"H; 21-4N
	Exh .....		
CARBURETOR			
Make, Model .....	Car BBS	Strom WW	Car AFB
Type and Size (in) .....	Sgl; 1.69	2 Bbl; 1.44	4 Bbl; Pri 1.44, Sec. 1.44
TRANSMISSION			
Standard .....	Manual	Manual	TorqueFlite
Optional .....	TorqueFlite 6	PF or TF	
Axle Ratio with .....			
Manual .....	3.54	3.58	
PowerFlite .....		3.31	
TorqueFlite .....	3.31	2.93; 3.31 Opt	3.31
CAPACITY			
Oil (Refill) .....	(qt) 4	5	5
Water (incl heater) .....	(qt) 14	21	21
Manual Transmission .....	(pt) 5	5	
Auto. Trans. .... (Refill-qt)	7.5	PowerFlite 10, TorqueFlite 9.5	
Rear Axle .....	(pt) 3.25	4	4
Gasoline .....	(gal) 20	20	20
GENERAL DATA (Four-Door Sedan)			
Wheelbase-F&R Tread (in)	118; 61.5, 60.1	118; 61.5, 60.2	118; 61.5, 60.2
Length-Width .....	(in) 209.4; 78.7	209.4; 78.7	209.4; 78.7
Turning Diam. .... (ft)	45.8	45.8	45.8
Shipping Weight .....	(lb) 3335	3510	NA
Suspension-Frt, Rear .....	Independent Tor Bar; Semi-elliptic		
Tire Size—Recm Press (lb)	7.00x14-22-22(4)	7.50x14-24-22(4)	7.50x14-24-22(4)

(1) The following engines are optional:

- Dart D-500, 361 cu. in., 9 to 1 CR, 4-bbl carburetor, 305 bhp @ 4800 rpm, 395 lb-ft @ 3000 rpm.
- D-500 Ram Induction, 383 cu. in., two 4-bbl carburetors, 10 to 1 CR, 330 bhp @ 4800 rpm, 460 lb-ft @ 2800 rpm.
- Timing set at 5°BTC with automatic transmission.
- Chrysler 1838505 and 10°BTC basic timing with automatic transmission.
- 8.00 x 14 tires optional.

CAR MODEL	Polara RD-1	Lancer 170 and 770
<b>ENGINE</b>		
No. Cyl-Head Type	V-8-I	6-I
Bore and Stroke (in)	4.12 x 3.38	3.4 x 3.125
Displacement (cu in)	361 (1 and 2)	170 (3)
Max Horsepower @ rpm	265 @ 4400 (1 and 2)	101 @ 4400 (3)
Max Torque, lb-ft @ rpm	380 @ 2400 (1 and 2)	155 @ 2400 (3)
Max bmep, lb/sq in	158.7	137.5
Compression Ratio	9.0 (1 and 2)	8.2
Material-Cyl Head, Block	CI; CI	CI; CI (4)
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.	AL A42	AL A952
Alternate	Champ J-12Y. AC 448	Champ UN-12Y. AC 45XLS
Spark Plug Gap (in)	.035	.035
Firing Order	1-8-4-3-6-5-7-2	1-5-3-6-4-2
Distributor Model	AL IBP-4005-E	1889750
Breaker Gap (in)	.014 to .019	.017 to .023
Cam Angle (degrees)	27 to 32	40 to 45
Basic Timing, °BTC	10	2.5
Battery—Volts, Ground	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in)	Int 2.08; 0.390 Exh 1.60; 0.390	1.62; 0.361 1.36; 0.344
Tappet Clr—Valve Material	Int Hyd. Lifters; 1041 Aluminized	.010"H; 1041
	Exh Hyd. Lifters; 21-4N	.020"H; 21-4N
<b>CARBURETOR</b>		
Make, Model	Strom WWC or Car BBD	Car BBS
Type and Size (in)	2 Bbl; 1.56	Sgl; 1.56
<b>TRANSMISSION</b>		
Standard	Manual	Manual
Optional	TorqueFlite	TorqueFlite 6
Axle Ratio with		
Manual	3.23	3.55
TorqueFlite	2.93; 3.23 Opt	3.23
<b>CAPACITY</b>		
Oil (Refill) (qt)	5	4
Water (incl heater) (qt)	17	12 (5)
Manual Transmission (pt)	4.25	5
Auto. Trans. (Refill-qt)	11	7.5
Rear Axle (pt)	4	2
Gasoline (gal)	20	13
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread (in)	122; 61.5, 60.2	108.5; 56.0, 55.5
Length-Width (in)	212.5; 78.7	188.8; 72.3
Turning Diam (ft)	46.8	40.4
Shipping Weight (lb)	3700	2605 (770)
Suspension-Frt, Rear	Independent Tor Bar	Bar; Semi-elliptic
Tire Size—Recm Press (lb)	8.00x14-24-22	6.50x13-24-24

- (1) D-500 engine with 325 bhp @ 4600 rpm, 425 lb-ft @ 2800 rpm, 10 to 1 CR and Carter AFB 4-bbl carburetor optional.
- (2) D-500 Ram Induction engine with 330 bhp, 460 lb-ft @ 2800 rpm, 10 to 1 CR and two 4-bbl carburetors optional.
- (3) Optional power package 225 cu. in. engine with 145 bhp @ 4000 rpm, 215 lb-ft @ 2800 rpm.
- (4) Power package engines have either die cast aluminum block or cast iron block with a cast iron head.
- (5) 14 qt. with power package engine.

# DE SOTO

## CAR MODEL

RS1-L-43

## ENGINE

No. Cyl-Head Type .....	V-8-1
Bore and Stroke (in) .....	4.12 x 3.38
Displacement (cu in) .....	361
Max Horsepower @ rpm .....	265 @ 4400
Max Torque, lb-ft @ rpm .....	380 @ 2400
Max bmep, lb/sq in .....	158.7
Compression Ratio .....	9.0
Material-Cyl Head, Block .....	CI; CI

## IGNITION

Spark Plug—Factory Eqpt. ....	AL A42
Alternate .....	Champ J-12Y, AC 448
Spark Plug Gap (in) .....	.035
Firing Order .....	1-8-4-3-6-5-7-2
Distributor Model .....	AL IBP-4005-E
Breaker Gap (in) .....	.014 to .019
Cam Angle (degrees) .....	27 to 32
Basic Timing, °BTC .....	10
Battery—Volts, Ground .....	12, Negative

## VALVES

Size and Lift (in) .....	Int 2.08; 0.390
Exh 1.60; 0.390	
Tappet Clr—Valve Material, Int	Hyd. Lifters; 1041 Aluminized
Exh	Hyd. Lifters; 21-4N

## CARBURETOR

Make, Model .....	Strom WWC or Car BBD
Type and Size (in) .....	2 Bbl; 1.56

## TRANSMISSION

Standard .....	Manual
Optional .....	TorqueFlite
Axle Ratio with	
Manual .....	3.23
TorqueFlite .....	2.93; 3.23 Opt

## CAPACITY

Oil (Refill) .....	(qt) 5
Water (incl heater) .....	(qt) 17
Manual Transmission .....	(pt) 4.25
Auto. Trans. .... (Refill-qt)	11
Rear Axle .....	(pt) 4
Gasoline .....	(gal) 20

## GENERAL DATA (Four-Door Sedan)

Wheelbase—F&R Tread .....	(in) 122; 61, 59.7
Length-Width .....	(in) 215.6; 79.4
Turning Diam .....	(ft) 46.8
Shipping Weight .....	(lb) 3820 4 Door Hardtop
Suspension—Frt, Rear .....	Independent Tor Bar; Semi-elliptic
Tire Size—Recm Press .....	(lb) 8.00x14-24-22



## CAR MODEL Custom, Crown and LeBaron

## ENGINE

No. Cyl-Head Type .....	V-8-I
Bore and Stroke (in) .....	4.18 x 3.75
Displacement (cu in) .....	413
Max Horsepower @ rpm .....	350 @ 4600
Max Torque, lb-ft @ rpm .....	470 @ 2800
Max bmep, lb/sq in .....	171.6
Compression Ratio .....	10.1
Material-Cyl Head, Block .....	CI; CI

## IGNITION

Spark Plug—Factory Eqpt. ....	AL A42
Alternate .....	Champ J-12Y, AC 44S
Spark Plug Gap (in) .....	.035
Firing Order .....	1-8-4-3-6-5-7-2
Distributor Model .....	2095530
Breaker Gap (in) .....	.014 to .019
Cam Angle (degrees) .....	27 to 32
Basic Timing, °BTC .....	10
Battery—Volts, Ground .....	12, Negative

## VALVES

Size and Lift (in) .....	Int 2.08; 0.390
Exh .....	1.60; 0.390
Tappet Clr—Valve Material, Int .....	Hydraulic Lifters; 1041 Aluminized
Exh .....	Hydraulic Lifters; 21-4N

## CARBURETOR

Make, Model .....	Car AFB
Type and Size (in) .....	4 Bbl; 1.44 Pri, 1.56 Sec

## TRANSMISSION

Standard .....	TorqueFlite
Optional .....	
Axle Ratio with .....	
TorqueFlite .....	2.93

## CAPACITY

Oil (Refill) .....	(qt) 5
Water (incl heater) .....	(qt) 17
Manual Transmission .....	(pt)
Auto. Trans. .... (Refill-qt) .....	11
Rear Axle .....	(pt) 4
Gasoline .....	(gal) 23

## GENERAL DATA (Four-Door Sedan)

Wheelbase—F&R Tread .....	(in) 129; 61.8, 62.2
Length—Width .....	(in) 227.1; 81.7
Turning Diam .....	(ft) 51.4
Shipping Weight .....	(lb) 4855 (Crown)
Suspension—Frt, Rear .....	Independent Tor Bar; Semi-elliptic
Tire Size—Recm Press .....	(lb) 8.20x15-24-24

# FORD

CAR MODEL	Falcon	Fairlane, Fairlane 500 or Galaxie Six	V-8
<b>ENGINE</b>			
No. Cyl-Head Type	6-I	6-I	V-8-I
Bore and Stroke (in)	3.5 x 2.5 (1)	3.625 x 3.6	3.75 x 3.3
Displacement (cu in)	144.3 (1)	223	292 (2)
Max Horsepower @ rpm	85 @ 4200 (1)	135 @ 4000	175 @ 4200 (2)
Max Torque, lb-ft @ rpm	134 @ 2000 (1)	200 @ 2000	279 @ 2200 (2)
Max bmep, lb/sq in	140.0	135.2	144.1
Compression Ratio	8.7	8.4	8.8 (2)
Material-Cyl Head, Block	CI; CI	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt	Champ F-14Y	Champ 870	Champ F-14Y
Alternate	BF 82, 85 TS	BF 82, 84T	BF 82, 85 TS
Spark Plug Gap (in)	.032 to .036	.032 to .036	.032 to .036
Firing Order	1-5-3-6-2-4	1-5-3-6-2-4	1-5-4-8-6-3-7-2
Distributor Model	CODF-12127-A	COAF-12127-G	COAF-12127-A
Breaker Gap (in)	.024 to .026	.024 to .026	.014 to .016
Cam Angle (degrees)	35 to 38	35 to 38	26 to 28.5
Basic Timing, °BTC	(3)	(3)	(4)
Battery—Volts, Ground	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in)	Int 1.47; 0.344 Exh 1.27; 0.344	1.78; 0.369 1.51; 0.369	1.65; 0.360 1.51; 0.360
Tappet Clr-Valve			
Material	Int .018"H; 1047 (5) Exh .018"H; CAS	.019"H; 1047 (5) .019"H; CAS	.018"H; 1047 (5) .018"H; CAS
<b>CARBURETOR</b>			
Make, Model	Holley	Holley	Ford
Type and Size (in)	Sgl; 1.44	Sgl; 1.56	2 Bbl; 1.44
<b>TRANSMISSION</b>			
Standard	Manual	Manual	Manual
Optional	Fordomatic	Fordomatic	Fordomatic or Cruise-O-Matic
Axle Ratio with			
Manual	3.10; 3.50 Opt	3.56	3.56
Overdrive	NA	3.89	3.89; 3.56 Opt
Fordomatic	3.50; 3.10 Opt	3.56	3.00
Cruise-O-Matic	NA	NA	3.00
<b>CAPACITY</b>			
Oil (Refill) (qt)	3.5	4	5
Water (incl heater) (qt)	9.3	16	20
Manual Transmission (pt)	2.3	3.0	3.0
Auto. Trans. (Refill-qt)	6.25	Fordomatic 9.5;	Cruise-O-Matic 10
Rear Axle (pt)	2.5	4.5	4.5
Gasoline (gal)	14	20	20
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread (in)	109.5; 55, 54.5	119; 61, 60	119; 61, 60
Length-Width (in)	181.2; 70.3	209.9; 79.9	209.9; 79.9
Turning Diam. (ft)	40.8	43.6	43.6
Shipping Weight (lb)	2289	3593 (6)	3691 (6)
Suspension-Frt, Rear		Independent Coil Springs;	Semi-elliptic
Tire Size—Recm Press (lb)	6.00x13-24-24	7.50x14-24-24	7.50x14-24-24

(1) A 170 cu. in., 101 bhp @ 4400; 156 lb-ft @ 2400 engine optional. For detailed specifications see the Comet optional engine.

(2) See next page for optional V-8 engines.

(3) 4°BTC with manual transmission; 10°BTC with automatic.

(4) 3°BTC with manual transmission; 10°BTC with automatic.

(5) Valves have aluminized throats and faces.

(6) Weight given for Fairlane 500 model with manual transmission.

Fairlane, Fairlane 500 and Galaxie  
Optional Engines

## CAR MODEL

## ENGINE

No. Cyl-Head Type	V-8-I	V-8-I
Bore and Stroke (in)	4.00 x 3.50	4.05 x 3.78
Displacement (cu in)	352	390
Max Horsepower @ rpm	220 @ 4400	300 @ 4600 (1)
Max Torque, lb-ft @ rpm	336 @ 2400	427 @ 2800 (1)
Max bmep, lb/sq in	143.9	165.1
Compression Ratio	8.9	9.6 (1)
Material-Cyl Head, Block	CI; CI	CI; CI

## IGNITION

Spark Plug—Factory Eqpt.	Champ F-11Y	Champ F-11Y
Alternate	AL BF42	AC 84TS
Spark Plug Gap (in)	.032 to .036	.032 to .036
Firing Order	1 - 5 - 4 - 2	6 - 3 - 7 - 8
Distributor Model	COAF-12127-E (2)	CISF-12127-A
Breaker Gap (in)	.014 to .016	.014 to .016
Cam Angle (degrees)	26 to 28.5	26 to 28.5
Basic Timing	(3)	(3)
Battery—Volts, Ground	12, Negative	12, Negative

## VALVES

Size and Lift (in)	Int 2.03; 0.408	2.03; 0.408
	Exh 1.56; 0.408	1.56; 0.408
Tappet Clr—Valve Material	Int Hydraulic Lifters; SAE 1047 Aluminum Coated	
	Exh Hydraulic Lifters; CAS Aluminum Coated	

## CARBURETOR

Make, Model	Ford	Ford
Type and Size (in)	2 Bbl; 1.44	4 Bbl; 1.56

## TRANSMISSION

Standard	Manual	Manual
Optional	Fordomatic or Cruise-O-Matic	Cruise-O-Matic
Axle Ratio with		
Manual	3.56	3.56
Overdrive	3.56	3.56
Automatic	3.00	3.00

## CAPACITY

Oil (Refill)	(qt) 5	5
Water (incl heater)	(qt) 20.5	20.5
Manual Transmission	(pt) 3.25	3.25
Auto. Trans.	(Refill-qt) 10	10
Rear Axle	(pt) 4.5	4.5
Gasoline	(gal) 20	20

## GENERAL DATA (Four-Door Sedan)

Wheelbase—F&R Tread	(in) 119; 61, 60	119; 61, 60
Length-Width	(in) 209.9; 79.9	209.9; 79.9
Turning Diam	(ft) 43.6	43.6
Shipping Weight	(lb) 3744 (4)	3776 (4)
Suspension—Frt, Rear	Independent Coil Springs; Semi-elliptic	
Tire Size—Recm Press	(lb) 7.50x14-24-24	7.50x14-24-24

(1) Special order high performance engine available with manual transmission only—375 bhp @ 6000 rpm, 427 lb-ft @ 3400 rpm, 10.6 CR.

(2) Distributor model COAF-12127-D used with automatic transmission.

(3) 3°BTC with manual transmission; 6°BTC with automatic transmission.

(4) Weight given for Fairlane 500 model with manual transmission.

# LINCOLN CONTINENTAL

CAR MODEL	Continental
<b>ENGINE</b>	
No. Cyl-Head Type .....	V-8-1
Bore and Stroke (in) .....	4.30 x 3.70
Displacement (cu in) .....	430
Max Horsepower @ rpm .....	300 @ 4100
Max Torque, lb-ft @ rpm .....	465 @ 2000
Max bmep, lb/sq in .....	163.1
Compression Ratio .....	10.0
Material-Cyl Head, Block .....	CI; CI
<b>IGNITION</b>	
Spark Plug—Factory Eqpt. ....	Champ F-11Y
Alternate .....	AL BF42, AC 84TS
Spark Plug Gap (in) .....	.032 to .036
Firing Order .....	1-5-4-2-6-3-7-8
Distributor Model .....	CIVF-12127-A
Breaker Gap (in) .....	.014 to .016
Cam Angle (degrees) .....	26 to 28.5
Basic Timing, °BTC .....	6
Battery—Volts, Ground .....	12, Negative
<b>VALVES</b>	
Size and Lift (in) .....	Int 1.96; 0.408
Exh .....	1.65; 0.408
Tappet Clr—Valve Material .....	Int Hyd. Lifters; Sll 1
Exh .....	Hyd. Lifters; Cast Austenitic Steel
	Aluminum Coated (1)
<b>CARBURETOR</b>	
Make, Model .....	Carter ABD
Type and Size (in) .....	2 Bbl; 1.562
<b>TRANSMISSION</b>	
Standard .....	Dual Range Turbo Drive
Optional .....	
Axle Ratio with	
Turbo Drive .....	2.89
<b>CAPACITY</b>	
Oil (Refill) .....	(qt) 5
Water (incl heater) .....	(qt) 25
Manual Transmission .....	(pt) 11.5
Auto. Trans. .....	(qt) 4.8
Rear Axle .....	(pt) 21
Gasoline .....	(gal) 21
<b>GENERAL DATA (Four-Door Sedan)</b>	
Wheelbase—F&R Tread .....	(in) 123; 62.1, 61.0
Length—Width .....	(in) 212.4; 78.6
Turning Diam .....	(ft) 47.8
Shipping Weight .....	(lb) 4927 (2)
Suspension—Frt, Rear .....	Independent Coil Springs; Semi-elliptic
Tire Size—Recm Press .....	(lb) 9.00x14-24-24

(1) Exhaust valves equipped with rotators.

(2) Weight given for 4-door hardtop; Convertible weighs 5215.

CAR MODEL	Meteor 600 and Meteor 800 Six	Meteor 800 and Monterey V-8	Optional Engine
<b>ENGINE</b>			
No. Cyl-Head Type .....	6-1	V-8-1	V-8-1
Bore and Stroke (in) .....	3.625 x 3.6	3.75 x 3.3	4.05 x 3.78 (1)
Displacement (cu in) .....	223	292	390 (1)
Max Horsepower @ rpm .....	135 @ 4000	175 @ 4200	300 @ 4600 (1)
Max Torque, lb-ft @ rpm .....	200 @ 2000	279 @ 2200	427 @ 2800 (1)
Max bmep, lb/sq in .....	135.2	144.1	165.1
Compression Ratio .....	8.4	8.8	9.6 (1)
Material-Cyl Head, Block .....	CI; CI	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt. ....	Champ 870	Champ F-14Y	Champ F-11Y
Alternate .....	BF 82, 84T	BF 82, 85TS	BF 42, 84TS
Spark Plug Gap (in) .....	.032 to .036	.032 to .036	.032 to .036
Firing Order .....	1-5-3-6-2-4	1-5-4-8-6-3-7-2	1-5-4-2-6-3-7-8
Distributor Model .....	COAF-12127-G	COAF-12127-A	CISF-12127-A
Breaker Gap (in) .....	.024 to .028	.014 to .016	.014 to .016
Cam Angle (degrees) .....	35 to 38	26 to 28.5	26 to 28.5
Basic Timing, °BTC .....	(2)	(3)	6 (4)
Battery—Volts, Ground ....	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in) .....	Int 1.78; 0.369 Exh 1.51; 0.369	1.65; 0.360 1.51; 0.360	2.03; 0.408 1.56; 0.408
Tappet Clr-Valve .....			
Material .....	Int .019"H; (5) Exh .019"H; CAS	.018"H; (5) .018"H; CAS	Hyd. Lifters; (5) Hyd. Lifters; (6)
<b>CARBURETOR</b>			
Make, Model .....	Holley	Ford	Ford
Type and Size (in) .....	Sgl; 1.56	2 Bbl; 1.44	4 Bbl; 1.56
<b>TRANSMISSION</b>			
Standard .....	Manual	Manual	Multi-Drive
Optional .....	Merc-O-Matic	Merc-O-Matic or Multi-Drive	
Axle Ratio with .....			
Manual .....	3.56	3.56	NA
Overdrive .....	3.89	3.89	NA
Automatic .....	3.56	3.00	3.00
<b>CAPACITY</b>			
Oil (Refill) .....	(qt) 4	5	5
Water (incl heater) .....	(qt) 16	20	20.5
Manual Transmission .....	(pt) 3.0	3.0	
Auto. Trans. .... (Refill-qt)		Merc-O-Matic 9.5; Multi-Drive 10	
Rear Axle .....	(pt) 4.5	4.5	4.5
Gasoline .....	(gal) 20	20	20
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread, (in) .....	120; 61, 60	120; 61, 60	120; 61, 60
Length-Width .....	(in) 214.6; 79.9	214.6; 79.9	214.6; 79.9
Turning Diam. .... (ft) .....	44.3	44.3	44.3
Shipping Weight .....	(lb) 3664	3762	3887
Suspension-Frt, Rear .....		Independent Coil Springs; Semi-elliptic	
Tire Size—Recm Press, (lb) .....	7.50x14-24-24	7.50x14-24-24	7.50x14-24-24

- (1) Two additional engine options are available — a 352 cu. in., 8.9 CR, 220 bhp @ 4400 rpm, 336 lb-ft @ 2400 and (on special order) a high performance 390 cu. in., 10.6 CR, 375 bhp @ 6000 rpm, 427 lb-ft @ 3400 rpm.
- (2) 4°BTC with manual transmission; 10°BTC with automatic.
- (3) 3°BTC with manual transmission; 10°BTC with automatic.
- (4) Ignition timing on 352 engine 3° manual, 6° automatic transmission; 14° on high performance engine.
- (5) SAE 1047 aluminum coated.
- (6) Cast austenitic steel aluminum coated.

# OLDSMOBILE

CAR MODEL	F-85	"88"
<b>ENGINE</b>		
No. Cyl-Head Type	V-8-1	V-8-1
Bore and Stroke (in)	3.5 x 2.8	4.125 x 3.69
Displacement (cu in)	215	394
Max Horsepower @ rpm	155 @ 4800	250 @ 4200 (1) (2)
Max Torque, lb-ft @ rpm	210 @ 3200	405 @ 2400 (1) (2)
Max bmep, lb/sq in	147.3	155.0
Compression Ratio	8.75	8.75 (1) (2)
Material-Cyl Head, Block	Al A ; Al A	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.	AC 46FP	AC 45
Alternate	AL AE 82	AL A52, Champ J-12Y
Spark Plug Gap (in)	.040	.030
Firing Order	1-8-4-3-6-5-7-2	1-8-7-3-6-5-4-2
Distributor Model	DR 1110975	DR 1110968
Breaker Gap (in)	.016	.016
Cam Angle (degrees)	28 to 32	28 to 32
Basic Timing	5°BTC @ 850 rpm with vac. line disconnected	
Battery—Volts, Ground	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in)	Int 1.522; 0.384 Exh 1.353; 0.384	1.875; 0.435 1.562; 0.437
Tappet Clr—Valve Material	Int Hydraulic Lifters; SAE 3140 or SAE 8645 Exh Hydraulic Lifters; 21-4N	
<b>CARBURETOR</b>		
Make, Model	RP 2GC	RP 2GC
Type and Size (in)	2 Bbl; 1.31	2 Bbl; 1.69
<b>TRANSMISSION</b>		
Standard	Manual	Manual
Optional	Hydra-Matic	Hydra-Matic
Axle Ratio with		
Manual	3.07	3.42
Hydra-Matic	3.23	2.87
<b>CAPACITY</b>		
Oil (Refill)	(qt) 4	4
Water (incl heater)	(qt) 12.5	20.25
Manual Transmission	(pt) 2.1	2.5
Auto. Trans.	(Refill-qt) 6	5.5
Rear Axle	(pt) 2.1	5.38
Gasoline	(gal) 16	20
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread	(in) 112; 56, 56	123; 61, 61
Length-Width	(in) 188.2; 71.5	212; 77.2
Turning Diam	(ft) 39.2	47.04
Shipping Weight	(lb) 2588 (Deluxe)	4024
Suspension-Frt, Rear	Ind. Coil Springs; Trailing Link Coil Springs	
Tire Size—Recm Press	(lb) 6.50x13-22-22	8.00x14-22-22

(1) With optional 10 to 1 compression ratio 275 bhp @ 4200 rpm, 275 lb-ft @ 2400 rpm.

(2) 325 bhp engine as used in Super 88 and "98" is optional.

**OLDSMOBILE**

<b>CAR MODEL</b>	<b>Super "88"</b>	<b>"98"</b>
<b>ENGINE</b>		
No. Cyl-Head Type .....	V-8-I	V-8-I
Bore and Stroke (in) .....	4.125 x 3.69	4.125 x 3.69
Displacement (cu in) .....	394	394
Max Horsepower @ rpm .....	325 @ 4600	325 @ 4600
Max Torque, lb-ft @ rpm .....	435 @ 2800	435 @ 2800
Max bmeq, lb/sq in .....	166.5	166.5
Compression Ratio .....	10.0	10.0
Material-Cyl Head, Block .....	CI; CI	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt. ....	AC 44	AC 44
Alternate .....	AL A42, Champ J-12Y	
Spark Plug Gap (in) .....	.030	.030
Firing Order .....	1 - 8 - 7 - 3 - 6 - 5 - 4 - 2	
Distributor Model .....	DR 1110968	DR 1110968
Breaker Gap (in) .....	.016	.016
Cam Angle (degrees) .....	28 to 32	28 to 32
Basic Timing .....	7.5°BTC @ 850 rpm with vac. line disconnected	
Battery—Volts, Ground .....	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in) .....	Int 1.875; 0.435	1.875; 0.435
Exh 1.562; 0.437		1.562; 0.437
Tappet Ctr—Valve Material ..	Int Hydraulic Lifters; SAE 8645	
Exh Hydraulic Lifters; 21-4N		
<b>CARBURETOR</b>		
Make, Model .....	RP 4GC	RP 4GC
Type and Size (in) .....		4 Bbl; 1.56 Pri, 1.69 Sec
<b>TRANSMISSION</b>		
Standard .....	Manual	Hydra-Matic
Optional .....	Hydra-Matic	
Axle Ratio with		
Manual .....	3.42	
Hydra-Matic .....	3.08	3.23
<b>CAPACITY</b>		
Oil (Refill) .....	(qt) 4	4
Water (Incl heater) .....	(qt) 20.25	20.25
Manual Transmission .....	(pt) 2.5	
Auto. Trans. .... (Refill-qt)	5.5	5.5
Rear Axle .....	(pt) 5.38	5.38
Gasoline .....	(gal) 20	20
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread .....	(in) 123; 61, 61	126; 61, 61
Length—Width .....	(in) 212; 77.3	218; 77.2
Turning Diam .....	(ft) 47.04	47.08
Shipping Weight .....	(lb) 4063	4209
Suspension—Frt, Rear .....	Ind. Coil Springs; Trailing Link Coil Springs	
Tire Size—Recm Press .....	(lb) 8.00x14-22-22	8.50x14-22-22

# PLYMOUTH

CAR MODEL	Valiant V-100 and V-200	Savoy, Belvedere and Fury 6
<b>ENGINE</b>		
No. Cyl-Head Type	6-1	6-1
Bore and Stroke (in)	3.4 x 3.125	3.4 x 4.125
Displacement (cu in)	170	225
Max Horsepower @ rpm	101 @ 4400 (1)	145 @ 4000
Max Torque, lb-ft @ rpm	155 @ 2400 (1)	215 @ 2800
Max bmep, lb/sq in	137.5	144.1
Compression Ratio	8.2	8.2
Material-Cyl Head, Block	CI; CI	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt.	AL AG 52 (2)	AL AG 52
Alternate	Champ UN-12Y, AC 45XLS	
Spark Plug Gap (in)	.035	.035
Firing Order	1 - 5 - 3	6 - 2 - 4
Distributor Model	1889750	2095270
Breaker Gap (in)	.017 to .023	.017 to .023
Cam Angle (degrees)	40 to 45	40 to 45
Basic Timing, °BTC	2.5 (3)	2.5 (4)
Battery—Volts, Ground	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in)	Int 1.62; 0.361 Exh 1.36; 0.344	1.62; 0.361 1.36; 0.344
Tappet Clr—Valve Material	Int .010"H; SAE 1041 Exh .020"H; 21-4N	
<b>CARBURETOR</b>		
Make, Model	Car BBS (1)	Car BBS
Type and Size (in)	Sgl; 1.56 (1)	Sgl; 1.69
<b>TRANSMISSION</b>		
Standard	Manual	Manual
Optional	TorqueFlite 6	TorqueFlite 6
Axis Ratio with		
Manual	3.55; 3.23 Opt	3.54; 3.90 Opt
TorqueFlite 6	3.23; 3.55 Opt	3.31; 3.54 Opt
<b>CAPACITY</b>		
Oil (Refill)	(qt) 4	4
Water (Incl heater)	(qt) 12	14
Manual Transmission	(pt) 5	5
Auto. Trans.	(Refill-qt) 7.5	7.5
Rear Axle	(pt) 2	3.25
Gasoline	(gal) 13	20
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread	(in) 106.5; 56.0, 55.5	118; 60.9, 59.6
Length-Width	(in) 183.7; 70.4	209.5; 80
Turning Diam	(ft) 40.3	45.7
Shipping Weight	(lb) 2600 (V-200)	3315
Suspension—Frt, Rear	Independent Tor Bar	Semi-elliptic
Tire Size—Recm Press	(lb) 6.50x13-24-24	7.00x14-24-24 (5)

(1) Optional Hyper Pack engine available with 4-bbl AFB carburetor, 148 bhp @ 5200 rpm, 153 lb-ft @ 4200 rpm.

(2) AL AG32 with optional Hyper Pack.

(3) 10°BTC with Hyper Pack.

(4) 5°BTC with automatic transmission.

(5) 8.00x14 tires optional.



# PLYMOUTH V-8

CAR MODEL	Savoy, Belvedere and Fury V-8	Super Fury V-800 Engine Option
<b>ENGINE</b>		
No. Cyl-Head Type .....	V-8-I	V-8-I
Bore and Stroke (in) .....	3.91 x 3.31	3.91 x 3.31
Displacement (cu in) .....	318 (1)	318
Max Horsepower @ rpm .....	230 @ 4400 (1)	360 @ 4400
Max Torque, lb-ft @ rpm .....	340 @ 2400 (1)	345 @ 2800
Max bmep, lb/sq in .....	161.2	163.6
Compression Ratio .....	9.0 (1)	9.0
Material-Cyl Head, Block .....	CI; CI	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqp.....	AL A42	AL A42
Alternate .....	Champ J-12Y; AC 448	
Spark Plug Gap (in) .....	.035	.035
Firing Order .....	1 - 8 - 4 - 3 - 6 - 5 - 7 - 2	
Distributor Model .....	2095647 (1)	1889710
Breaker Gap (in) .....	.014 to .019	.014 to .019
Cam Angle (degrees) .....	27 to 32	27 to 32
Basic Timing, °BTC .....	5 (2)	10
Battery—Volts, Ground .....	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in) .....	Int 1.84; 0.370 Exh 1.56; 0.368	1.84; 0.390 1.56; 0.388
Tappet Clr—Valve Material .....	Int .010"H; SAE 1041 Exh .018"H; 21-4N	
<b>CARBURETOR</b>		
Make, Model .....	Car BBD or Strom WW	Car AFB
Type and Size (in) .....	2 Bbl; 1.44	4 Bbl; 1.44 Pri, 1.44 Sec
<b>TRANSMISSION</b>		
Standard .....	Manual	TorqueFlite
Optional .....	PF or TF	
Axle Ratio with		
Manual .....	3.58; 3.91 Opt	NA
PowerFlite .....	3.31; 3.58 Opt	NA
TorqueFlite .....	2.93; 3.31 Opt	2.93; 3.31 Opt
<b>CAPACITY</b>		
Oil (Refill) .....	(qt) 5	5
Water (Incl heater) .....	(qt) 21	21
Manual Transmission .....	(pt) 5	
Auto. Trans. (Refill-qt) .....	PF 10; TF 9.5	9.5
Rear Axle .....	(pt) 4	4
Gasoline .....	(gal) 20	20
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread .....	(in) 118; 60.9, 59.7	
Length-Width .....	(in) 209.5; 80	
Turning Diam .....	(ft) 45.7	
Shipping Weight .....	(lb) 3470	
Suspension—Frt, Rear .....	Independent Tor Bar; Semi-elliptic	
Tire Size—Recm Press .....	(lb) 7.50x14-24-22; 8.00x14-24-22 optional	
(1) Golden Commando engine, 361 cu. in., 9 to 1 CR, 4-bbl carburetor, 305 bhp @ 4800, 395 lb-ft @ 3000 rpm optional. Sonoramic Commando engine, 383 cu. in., 10 to 1 CR, two 4-bbl carburetors with ram manifold, 330 bhp @ 4800, 460 lb-ft @ 2800 rpm also optional. (2) Timing given for manual transmission. With automatic 1838505 distributor with 10°BTC basic timing.		

# PONTIAC

CAR MODEL	Tempest 4 Synchromesh	Tempest 4 Automatic	Tempest V-8
<b>ENGINE</b>			
No. Cyl-Head Type .....	4-I	4-I	V-8-I
Bore and Stroke (in) .....	4.06 x 3.75	4.06 x 3.75	3.50 x 2.80
Displacement (cu in) .....	194.5	194.5	215
Max Horsepower @ rpm .....	110 @ 3800 (1)	130 @ 4400 (1)	155 @ 4600
Max Torque, lb-ft @ rpm .....	190 @ 2000 (1)	195 @ 2200 (1)	220 @ 2400
Max bmep, lb/sq in .....	147.3	151.2	154.0
Compression Ratio .....	8.6 (1)	8.6 (1)	8.8
Material-Cyl Head, Block .....	CI; CI	CI; CI	Al A; Al A

<b>IGNITION</b>			
Spark Plug—Factory Eqpt. ....	AC45S	AC45S	AC 45FFS
Alternate .....	AL A52, Champ J-12Y		AE 52
Spark Plug Gap (in) .....	.033 to .038	.033 to .038	.030 to .034
Firing Order .....	1-3-4-2	1-3-4-2	1-8-4-3-6-5-7-2
Distributor Model .....	DR 1110254 (2)	DR 1110254 (2)	DR 1110977
Breaker Gap (in) .....	.013 to .019	.013 to .019	.013 to .019
Cam Angle (degrees) .....	73 to 77	73 to 77	28 to 32
Basic Timing, °BTC .....	6	6	5
Battery—Volts, Ground .....	12, Negative	12, Negative	12, Negative

<b>VALVES</b>			
Size and Lift (in) .....	Int 1.88; 0.33	1.88; 0.40	1.50; 0.38
	Exh 1.60; 0.33	1.60; 0.40	1.31; 0.38
Tappet Clr-Valve .....			
Material .....	Int Hyd. Lifters; Mn Moly Aluminized	Hyd. Lifters;	Hyd. Lifters;
	Exh Hyd. Lifters; T-XCR Aluminized	SAE 1050	SAE 1050
			Si1 10

<b>CARBURETOR</b>			
Make, Model .....	RP BC	RP BC	RP 2GC
Type and Size (in) .....	Sgl; 1.57	Sgl; 1.57	2 Bbl; 1.31

<b>TRANSMISSION</b>			
Standard .....	Manual	TempestTorque	Manual
Optional .....			TempestTorque
Axle Ratio with .....			
Manual .....	3.55 Std; 3.31 and 3.73 Opt		3.55, 3.31, 3.73
Automatic .....	3.08 Std; 3.55 Opt (3)		3.55, 3.31, 3.73

<b>CAPACITY</b>			
Oil (Refill) .....	(qt) 4	4	4
Water (incl heater) .....	(qt) 12.6	12.6	12.6
Manual Transmission .....	(pt) 3		3
Auto. Trans. .... (Refill-qt)		2	2
Rear Axle .....	(pt) 3	3	3
Gasoline .....	(gal) 15.5	15.5	15.5

<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread (in) .....	112; 56.8, 56.8	112; 56.8, 56.8	112; 56.8, 56.8
Length-Width .....	(in) 189.3; 72.2	189.3; 72.2	189.3; 72.2
Turning Diam. .... (ft) .....	43.3	43.3	43.3
Shipping Weight .....	(lb) 2800	2817	2655
Suspension-Frt, Rear .....		Ind. Coil Springs; Swing Axle Transaxle	
Tire Size—Recm Press. (lb) .....		6.00x15-22-22 Std; 6.50x15-22-22 Opt	

(1) Three additional optional engines are available:

BHP @ RPM	Torque @ RPM	CR	Carburetor	Transmission
120 @ 3800	202 @ 2000	10.25	Sgl	Manual
140 @ 4400	207 @ 2200	10.25	Sgl	Automatic
155 @ 4800	215 @ 2800	10.25	4 Bbl	Man. Auto

(2) DR 1110261 with premium fuel 10.25 CR engine.

(3) 3.55 Std; 3.31 and 3.73 optional on 155 bhp engine.

# PONTIAC

CAR MODEL	Catalina and Ventura	Star Chief	Bonneville
<b>ENGINE</b>			
No. Cyl-Head Type .....	V-8-I	V-8-I	V-8-I
Bore and Stroke (in) .....	4.06 x 3.75	4.06 x 3.75	4.06 x 3.75
Displacement (cu in) .....	389	389	389
Max Horsepower @ rpm .....	267 @ 4200 (1)	283 @ 4400 (1)	303 @ 4600 (1)
Max Torque, lb-ft @ rpm .....	405 @ 2400 (1)	413 @ 2800 (1)	425 @ 2800 (1)
Max bmep, lb/sq in .....	157.0 (1)	160.1 (1)	164.8 (1)
Compression Ratio .....	10.25 (1)	10.25 (1)	10.25 (1)
Material-Cyl Head, Block ..	CI; CI	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt. ..	AC 45S	AC 45S	AC 45S
Alternate .....		AL A52, Champ J-12Y	
Spark Plug Gap (in) .....	.033 to .038	.033 to .038	.033 to .038
Firing Order .....		1 - 8 - 4 - 3 - 6 - 5 - 7 - 2	
Distributor Model .....	DR 1110971 @	8.6 CR; DR 1110970 @	10.25, 10.75 CR
Breaker Gap (in) .....	.016	.016	.016
Cam Angle (degrees) .....	28 to 32	28 to 32	28 to 32
Basic Timing, °BTC .....	6	6	6
Battery—Volts, Ground ...	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in) .....	Int 1.88; 0.37 Exh 1.60; 0.37	1.88; 0.40 1.60; 0.40	1.88; 0.40 1.60; 0.40
Tappet Clr-Valve .....			
Material .....	Int Exh	Hyd. Lifters; Manganese Moly Aluminized Hyd. Lifters; T-XCR Aluminized	
<b>CARBURETOR</b>			
Make, Model .....	RP 2GC	RP 2GC	Carter AFB
Type and Size (in) .....	2 Bbl; 1.69	2 Bbl; 1.69	4 Bbl; 1.44 Pri, 1.69 Sec
<b>TRANSMISSION</b>			
Standard .....	Manual	Manual	Manual
Optional .....	Hydra-Matic (3 Spd)	Hydra-Matic (4 Spd)	Hydra-Matic (4 Spd)
Axle Ratio with .....			
Manual .....		3.23 Standard; 3.08 and 3.42 Optional	
Hydra-Matic .....		2.87 Standard; 2.69 and 3.08 Optional (2)	
<b>CAPACITY</b>			
Oil (Refill) .....	(qt) 4	4	4
Water (Incl heater) .....	(qt) 19.5	19.5	19.5
Manual Transmission .....	(pt) 1.8	2.8	2.8
Auto. Trans. .... (Refill-qt)	6	9	9
Rear Axle .....	(pt) 5.5	5.5	5.5
Gasoline .....	(gal) 25	25	25
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread (in) ..	119; 62.5, 62.5	123; 62.5, 62.5	123; 62.5, 62.5
Length-Width .....	(in) 210; 78.2	217; 78.2	217; 78.2
Turning Diam. ....	(ft) 48.8	49.4	49.4
Shipping Weight .....	(lb) 3720 Catalina	3840	3895
Suspension-Frt, Rear .....		Ind. Coil Springs; Trailing Link Coil Springs	
Tire Size—Recm Press. (lb) ..		8.00x14-22-22 Std; 8.50x14-20-20 Opt	
(1) Hp, torque, bmep and CR given for engines equipped with optional Hydra-Matic transmission. Catalina, Ventura and Star Chief use 215 bhp @ 3600 rpm, 390 lb-ft @ 2000 rpm, 8.6 CR and Bonneville uses 235 bhp @ 3600 rpm, 402 lb-ft @ 2000 rpm, 8.6 CR with manual transmission. The following optional engines are available on all models:			
BHP @ RPM	Torque @ RPM	CR	Carburetor
230 @ 4000	380 @ 2000	8.6	2 Bbl
235 @ 3600	402 @ 2000	8.6	4 Bbl
287 @ 4400	417 @ 2400	10.25	4 Bbl
318 @ 4600	430 @ 3200	10.75	3-2 Bbl
333 @ 4800	425 @ 2800	10.75	4 Bbl
348 @ 4800	430 @ 3200	10.75	3-2 Bbl
			SM, HM
			SM, HM
			SM, HM
(2) Catalina Model has 2.69 std and 2.56 and 3.08 opt with Hydra-Matic. All models use 2.56 axle ratio with 230 hp economy engine.			

# RAMBLER AMERICAN

CAR MODEL	Deluxe and Super	Custom
<b>ENGINE</b>		
No. Cyl-Head Type .....	6-L	6-I (1)
Bore and Stroke (in) .....	3.125 x 4.25	3.125 x 4.25
Displacement (cu in) .....	195.6	195.6
Max Horsepower @ rpm .....	90 @ 3800	125 @ 4200 (1)
Max Torque, lb-ft @ rpm .....	160 @ 1600	180 @ 1600 (1)
Max bmep, lb/sq in .....	123.4	138.5
Compression Ratio .....	8.0	8.7 (1)
Material-Cyl Head, Block .....	CI; CI	CI; CI
<b>IGNITION</b>		
Spark Plug—Factory Eqpt. ....	AL AL-7 or Champ H-10	AL AL82 or Champ H-18Y
Alternate .....	AC 45L	AC 45LS
Spark Plug Gap (in) .....	.033 to .037	.033 to .037
Firing Order .....	1 - 5 - 3	6 - 2 - 4
Distributor Model .....	AL IAT-4402-1	DR 1112434
Breaker Gap (in) .....	.017 to .022	.016
Cam Angle (degrees) .....	37 to 41	28 to 35
Basic Timing, °BTC .....	3	8 (2)
Battery—Volts, Ground .....	12, Negative	12, Negative
<b>VALVES</b>		
Size and Lift (in) .....	Int 1.469; 0.324 Exh 1.281; 0.322	1.594; 0.366 1.343; 0.361
Tappet Clr—Valve Material..Int	.016°C; 1041 Aluminized	.012"H; 1041 Aluminized
Exh .....	.018°C; S11 10	.016"H; 21-4N
<b>CARBURETOR</b>		
Make, Model .....	Carter YP	Holley
Type and Size (in) .....	Sgl; 1.44	Sgl; 1.44
<b>TRANSMISSION</b>		
Standard .....	Manual	Manual
Optional .....	Overdrive or	Flash-O-Matic
Axle Ratio with		
Manual .....	3.31; 3.78 Opt	3.31; 3.78 Opt
Overdrive .....	3.78; 4.11 Opt	3.31; 3.78 Opt
Flash-O-Matic .....	3.31	2.87; 3.31 Opt
<b>CAPACITY</b>		
Oil (Refill) .....	(qt) 4	4
Water (incl heater) .....	(qt) 12	11
Manual Transmission .....	(pt) 1.5 (3)	1.5 (3)
Auto. Trans. .... (Refill-qt)	10	10
Rear Axle .....	(pt) 3	3
Gasoline .....	(gal) 20	20
<b>GENERAL DATA (Four-Door Sedan)</b>		
Wheelbase—F&R Tread .....	(in) 100; 54.6, 55	100; 54.6, 55
Length-Width .....	(in) 173.1; 70	173.1; 70
Turning Diam .....	(ft) 37.9	37.9
Shipping Weight .....	(lb) 2544 (Super)	2594
Suspension-Frt, Rear .....	Independent Coil Springs; Semi-elliptic	
Tire Size—Recm Press .....	(lb) 6.00x15-24-24 (4)	6.00x15-24-24 (4)

(1) American Custom engine optional on Deluxe and Super.

(2) 10°BTC with automatic transmission.

(3) 1.25 pint additional with overdrive.

(4) 6.50x15 tires optional.

**RAMBLER**

CAR MODEL	Rambler Classic 6	Rambler Classic V-8	Rambler Ambassador
<b>ENGINE</b>			
No. Cyl-Head Type .....	6-I (1)	V-8-I	V-8-I
Bore and Stroke (in) .....	3.125 x 4.25	3.5 x 3.25	4.0 x 3.25
Displacement (cu in) .....	195.6	250	327
Max Horsepower @ rpm .....	127 @ 4200 (2)	200 @ 4900 (3)	250 @ 4700 (4)
Max Torque, lb-ft @ rpm .....	180 @ 1600 (2)	245 @ 2500 (3)	340 @ 2600 (4)
Max bmepp, lb/sq in .....	138.5	147.8	158.8
Compression Ratio .....	8.7	8.7	8.7 (4)
Material-Cyl Head, Block ..	CI; Al A (1)	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt..	Autolite AL-7 or Champion H-10		
Alternate .....	AC 45L	AC 45L	AC 45L
Spark Plug Gap (in) .....	.033 to .037	.033 to .037	.033 to .037
Firing Order .....	1-5-3-6-2-4	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2
Distributor Model .....	DR 1112434	AL IPB-4107	AL IPB-4107
Breaker Gap (in) .....	.016	.014 to .019	.014 to .019
Cam Angle (degrees) .....	28 to 35	28 to 32	28 to 32
Basic Timing, °BTC .....	8	TDC (5)	TDC (5)
Battery—Volts, Ground ...	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in) .....	Int 1.504; 0.388 Exh 1.25; 0.388	1.787; 0.375 1.406; 0.375	1.787; 0.375 1.406; 0.375
Tappet Clr-Valve			
Material .....	Int Hyd Lifters; 1041 Alum	.012"H; Sil 1 or XB	Hyd Lifters; Sil 1 or XB
	Exh Hyd Lifters; 21-4N	.014"H; 21-4N	Hyd Lifters; 21-4N
<b>CARBURETOR</b>			
Make, Model .....	Holley or Car	Holley 2040	Holley 2040
Type and Size (in) .....	Sgl; 1.44 (2)	2 Bbl; 1.44 (3)	2 Bbl; 1.44 (4)
<b>TRANSMISSION</b>			
Standard .....	Manual	Manual	Manual
Optional .....		Overdrive or Flash-O-Matic	
Axle Ratio with			
Manual .....	3.78; 4.11 & 4.38 Opt	4.10; 4.44 Opt	3.54; 4.10 Opt
Overdrive .....	4.11; 4.38 Opt	4.10; 4.44 Opt	3.54; 4.10 Opt
Flash-O-Matic .....	3.31; 3.78 Opt	3.15; 3.55 Opt	2.87; 3.15 Opt
<b>CAPACITY</b>			
Oil (Refill) .....	4 (qt)	4	4
Water (Incl heater) .....	10.5 (qt)	20	19
Manual Transmission .....	1.5 (pt)	2.25	4
Auto. Trans. .... (Refill-qt)	10	10	11
Rear Axle .....	3 (pt)	4	4
Gasoline .....	20 (gal)	20	20
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread (in) ..	108; 57.8, 58	108; 58.8, 59.1	117; 57.8, 59.1
Length-Width .....	(in) 189.8; 72.4	189.8; 72.4	199.0; 73.8
Turning Diam. .... (ft)	39.4	39.7	41.8
Shipping Weight .....	(lb) 2863 (6)	3255 (Super)	3361
Suspension-Frt, Rear .....	Ind. Coil Springs; Torque Tube Coil Springs		
Tire Size—Recm Press. (lb)	6.50x15-24-24 (7)	7.50x14-24-24	8.00x14-22-20

- (1) Engine used in Deluxe and Super Models uses cast iron block. Custom model uses die-cast aluminum block. Specs given for aluminum block engine.
- (2) 138 bhp @ 4500 rpm, 185 lb-ft @ 1800 rpm with optional Carter WCD 2-bbl carburetor.
- (3) 215 bhp @ 4900 rpm and 260 lb-ft @ 2500 rpm with optional 4-bbl carburetor.
- (4) With optional 4-bbl carburetor, 9.7 CR, 270 bhp @ 4700 rpm, 360 lb-ft @ 2600 rpm.
- (5) 5°BTC with automatic transmission.
- (6) Weight given for Custom with aluminum block engine. Deluxe 2915; Super 2933.
- (7) 6.70 x 15 tires optional.

# STUDEBAKER

CAR MODEL	Lark 6	Lark V-8 and Cruiser V-8	Hawk Coupe
<b>ENGINE</b>			
No. Cyl-Head Type .....	6-1	V-8-1	V-8-1
Bore and Stroke (in) .....	3.0 x 4.0	3.56 x 3.25	3.56 x 3.625
Displacement (cu in) .....	169.6	259.2	289
Max Horsepower @ rpm .....	112 @ 4500	180 @ 4500 (1)	210 @ 4500 (2)
Max Torque, lb-ft @ rpm .....	154 @ 2000	260 @ 2800 (1)	300 @ 2800 (2)
Max bmep, lb/sq in .....	136.9	151.3	156.5
Compression Ratio .....	8.5	8.8	8.8
Material-Cyl Head, Block ..	CI; CI	CI; CI	CI; CI
<b>IGNITION</b>			
Spark Plug—Factory Eqpt..	Champ H-14Y	Champ H-14Y	Champ H-14Y
Alternate .....	AL	AL 52, AC 45 LS	
Spark Plug Gap (in) .....	.033 to .038	.033 to .038	.033 to .038
Firing Order .....	1-5-3-6-2-4	1-8-4-3-6-5-7-2	
Distributor Model .....	AL IAT-4403-B	DR 1110981	DR 1110980
Breaker Gap (in) .....	.017 to .022	.013 to .018	.013 to .018
Cam Angle (degrees) .....	37 to 41	28 to 32	28 to 32
Basic Timing, °BTC .....	2	4	4
Battery—Volts, Ground ...	12, Negative	12, Negative	12, Negative
<b>VALVES</b>			
Size and Lift (in) .....	Int 1.59; 0.359 Exh 1.40; 0.359	1.66; 0.359 1.53; 0.359	1.66; 0.359 1.53; 0.359
Tappet Clr-Valve .....		.026°C or .024°H; 8645	
Material .....	Int Exh	.026°C or .024°H; 2112N	
<b>CARBURETOR</b>			
Make, Model .....	Carter AS	Strom WW(1)	Strom WW (2)
Type and Size (in) .....	Sgl; 1.25	2 Bbl; 1.25	2 Bbl; 1.25
<b>TRANSMISSION</b>			
Standard .....	Manual	Manual	Manual (3)
Optional .....		Overdrive or Flight-O-Matic	
Axle Ratio with .....			
Manual .....	3.73	3.07	3.31
Overdrive .....	4.1	3.54	3.54
Flight-O-Matic .....	3.73	3.07	3.07
<b>CAPACITY</b>			
Oil (Refill) .....	(qt) 5	5	5
Water (Incl heater) .....	(qt) 12	18	18
Manual Transmission .....	(pt) 2.3 (4)	3.8 (5)	3.8 (5)
Auto. Trans. .... (Refill-qt)	9	9	9
Rear Axle .....	(pt) 2.5	2.5	3
Gasoline .....	(gal) 18	18	18
<b>GENERAL DATA (Four-Door Sedan)</b>			
Wheelbase-F&R Tread. (in)	108.5; 57.4, 56.6	108.5; 57.4, 56.6 (6)	120.5; 57.4, 56.6
Length-Width .....	(in) 175; 71.4	175; 71.4 (6)	204; 71.3
Turning Diam. ....	(ft) 40.0	40.0	45.3
Shipping Weight .....	(lb) 2692	2966	3205
Suspension-Frt, Rear .....		Independent Coil Springs; Semi-elliptic	
Tire Size—Recm Press. (lb)	6.00x15-24-20	6.50x15-24-20	6.70x15-24-20

- (1) 195 bhp @ 4500 rpm; 265 lb-ft @ 3000 rpm with 4-bbl Carter WCFB carburetor and dual exhaust.
- (2) 225 bhp @ 4500 rpm; 305 lb-ft @ 3000 rpm with optional 4-bbl Carter WCFB carburetor and dual exhaust
- (3) Four-speed manual transmission optional.
- (4) 3.15 pints total capacity with overdrive.
- (5) 4.06 pints total capacity with overdrive.
- (6) Cruiser model has 113 inch wheelbase and is 179 inch over-all.

# THUNDERBIRD

CAR MODEL	Thunderbird
<b>ENGINE</b>	
No. Cyl-Head Type .....	V-8-I
Bore and Stroke (in) .....	4.05 x 3.78
Displacement (cu in) .....	390
Max Horsepower @ rpm .....	300 @ 4600
Max Torque, lb-ft @ rpm .....	427 @ 2800
Max bmep, lb/sq in .....	165.1
Compression Ratio .....	9.6
Material-Cyl Head, Block .....	CI; CI
<b>IGNITION</b>	
Spark Plug—Factory Eqpt. ....	Champ F-11Y
Alternate .....	AL BP42, AC 8478
Spark Plug Gap (in) .....	.032 to .036
Firing Order .....	1-5-4-2-6-3-7-8
Distributor Model .....	CISP-12127-A
Breaker Gap (in) .....	.014 to .016
Cam Angle (degrees) .....	26 to 28.5
Basic Timing, °BTC .....	6
Battery—Volts, Ground .....	12, Negative
<b>VALVES</b>	
Size and Lift (in) .....	Int 2.03; 0.408
Exh	1.56; 0.408
Tappet Ctr—Valve Material. .Int	Hyd Lifters; SAE 1047 Aluminum Coated
Exh	Hyd. Lifters; CAS Aluminum Coated
<b>CARBURETOR</b>	
Make, Model .....	Ford
Type and Size (in) .....	4 Bbl; 1.56
<b>TRANSMISSION</b>	
Standard .....	Cruise-O-Matic
Optional .....	
Axle Ratio with .....	
Cruise-O-Matic .....	3.00
<b>CAPACITY</b>	
Oil (Refill) .....	(qt) 5
Water (Incl heater) .....	(qt) 20.5
Manual Transmission .....	(pt)
Auto. Trans. .... (Refill-qt)	10
Rear Axle .....	(pt) 4.5
Gasoline .....	(gal) 20
<b>GENERAL DATA (Four-Door Sedan)</b>	
Wheelbase—F&R Tread .....	(in) 113; 61, 60
Length-Width .....	(in) 205; 75.9
Turning Diam .....	(ft) 43.1
Shipping Weight .....	(lb) 3958 Hardtop
Suspension-Frt, Rear .....	Independent Coil Springs; Semi-elliptic
Tire Size—Recm Press .....	(lb) 8.00x14-24-24

# SPARK PLUG HEAT

		← HOTTER →				
AC	14 mm 3/8" Reach	C49	48	46S* 46 R46 R46S*	R45 45S* 45 R45S*	
	14 mm 1/2" Reach	47L			45L 45LS* LM45L	
	14 mm 5/8" Reach	47FF	45FFS* R46FF	46FF	45FF 45F 45FD	
	14 mm 3/4" Reach	47XL	46XL	45N	45XL R45XL R45XLS* 45XLS*	
	18 mm 60° Seat	86T 86TS*			85T R85T 85TS* R85TS*	
CHAM- PION	14 mm 3/8" Reach	UJ-12*	J-11		J-8 J-18Y* UJ-8*	
	14 mm 1/2" Reach	H-12	H-11		H-10 H-14Y*	
	14 mm 5/8" Reach					
	14 mm 3/4" Reach	N-18				
	18 mm 60° Seat	870 F-14Y*				
AUTO- LITE	14 mm 3/8" Reach	A11	AR10 AT10	A9 AZ9†	AR80 A82* AR82* AT8	A7
	14 mm 1/2" Reach	AL11	AL9	ARL8 ATL8	ARL82* AL82*	AL7
	14 mm 5/8" Reach	AE82*				
	14 mm 3/4" Reach	1GS125		1GS-150 AGR82*	AG7 AGZ7†	
	18 mm 60° Seat	BRF8 BF82* BRF82*			BF7	

\* Plugs with extended gap design

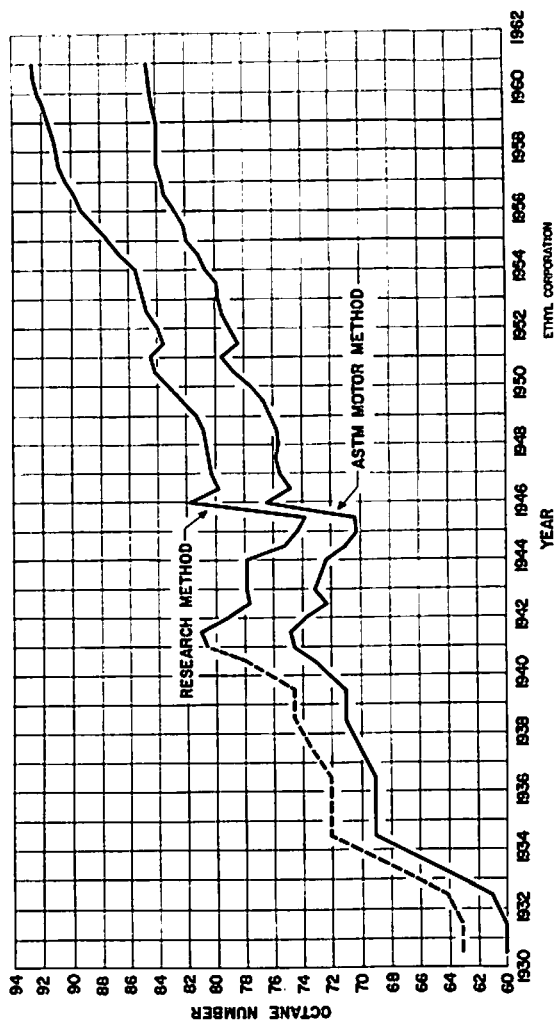
† Plugs with internal auxiliary gaps



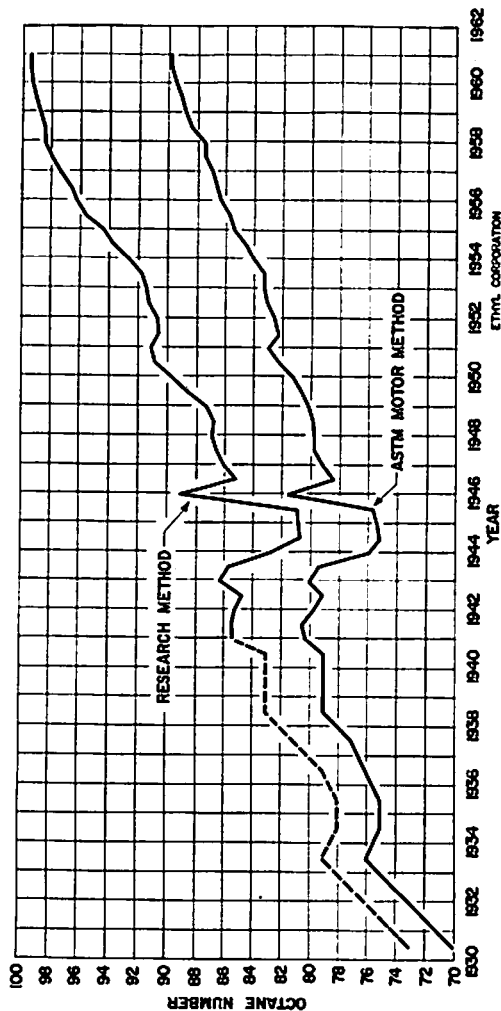
# RANGE COMPARISONS

COLDER						
44 R44	R44S* 44S*	43 R43	42 42S*	14 mm 3/8" Reach	AC	
		43L		14 mm 1/4" Reach		
44FF 44F			42FF	14 mm 1/2" Reach		
44N R44N	R44XLS* R44XL	43N R43N	C42N	14 mm 3/4" Reach		
	84T 84TS* R84TS*	C83T		18 mm 60" Seat		
J-7	J-12Y* XJ-12Y*	J-6 UJ-6†	J-9Y*	J-58R	14 mm 3/8" Reach	CHAM- PION
	H-8				14 mm 1/4" Reach	
UL-15Y*†					14 mm 1/2" Reach	
N-8	N-5	UN-12Y* XN12Y*	N-3		14 mm 3/4" Reach	
860 F-11Y*		F-9Y*	F-10		18 mm 60" Seat	
AT6	AR51 A5	A52* AR52*	A42* AR41 AR42* AT4 AT42*	A3 AT3 AR32* A32* AR31	14 mm 3/8" Reach	AUTO- LITE
	AL5 ARL5	ATL4			14 mm 1/4" Reach	
	AE52*	AE42*	AE22*		14 mm 1/2" Reach	
	AGR51 AGR52* AG5 AG52*	AG42* AGR41 AGR42* AG4	AGR32* AGR31 AG3 AG32*		14 mm 3/4" Reach	
BTF6		BRF42* BF42*	BTF3 BF32*		18 mm 60" Seat	

# TREND IN ANTIKNOCK QUALITY OF REGULAR GASOLINES SOLD IN THE UNITED STATES



# TREND IN ANTIKNOCK QUALITY OF PREMIUM GASOLINES SOLD IN THE UNITED STATES



## AUTOMATIC TRANSMISSIONS

### American Motors

#### *Flash-O-Matic (Rambler)*

This transmission is composed of a three-element torque converter and a multiple pinion compound planetary gearset to produce three forward speeds and reverse. The drive is always through the converter which has a maximum torque multiplication of 2.12:1. In D-1 position drive starts through the torque converter and low gear ratio (2.40:1), shifts to torque converter plus intermediate ratio (1.47:1) and then shifts to converter only. In D-2 position transmission starts in intermediate gear and shifts to direct.

### Chrysler Corporation

#### *PowerFlite (Dodge Dart, Plymouth)*

This transmission consists of a three-element torque converter and two planetary gearsets providing low and reverse ratios. The drive is always through the converter which has a maximum torque multiplication of 2.2:1. Normal drive starts through the torque converter and low gear ratio (1.72:1) and automatically shifts to converter only.

#### *TorqueFlite (Chrysler, DeSoto, Dodge, Imperial, Lancer, Plymouth, Valiant)*

This transmission consists of a three-element torque converter and two planetary gearsets providing three forward speeds and reverse. The drive is always through the converter which has a maximum torque multiplication of 2.2. Normal drive starts through the converter and low gear ratio (2.45:1), shifts to torque converter plus intermediate ratio (1.45:1) and then shifts to converter only.

### Ford Motor Company

#### *Fordomatic and Merc-O-Matic (Ford, Falcon, Mercury, Comet)*

This transmission consists of a three-element torque converter with a multiple pinion planetary gearset providing low and reverse ratios. The drive is always through the converter which has a maximum torque multiplication of 2.4 to 2.6:1. Normal drive starts through the torque converter and low gear ratio (1.75:1) and automatically shifts to converter only.

### ***Cruise-O-Matic, Multi-Drive and Turbo-Drive***

***(Ford, Mercury, Lincoln Continental, Thunderbird)***

This transmission is composed of a three-element torque converter and a multiple pinion planetary gear system to produce three forward speeds and reverse. The drive is always through the converter, which has a maximum torque multiplication of 2.1:1. Normal drive in D-1 position starts through the torque converter and low gear ratio (2.40 or 2.37), shifts to torque converter plus intermediate ratio (1.47 or 1.48) and then shifts to converter only. In D-2 position the transmission starts in intermediate gear and then shifts to direct.

### **General Motors Corporation**

#### ***Turbine Drive (Buick LeSabre, Invicta and Electra)***

This transmission consists of a five-element torque converter and a multiple pinion planetary gearset providing low and reverse ratios. The two turbine elements of the converter are interconnected through a planetary gearset of 1.6:1 ratio. The stator vanes are pivoted in the vane carrier and their pitch is controlled by a hydraulic piston in response to accelerator position. The maximum torque multiplication of the converter is 3.4 in the high stator pitch and 3.1 in the low pitch position. No additional gearing, other than the internal gearing between the turbines, is used for normal forward driving. The drive is always through the converter. Low range, 1.82:1 gear ratio, can be manually engaged for extra pulling power and engine braking.

#### ***Powerglide (Chevrolet, Corvair and Corvette)***

This transmission consists of a three-element torque converter with a multiple pinion planetary gearset providing low and reverse ratios. The drive is always through the converter which has a maximum torque multiplication of 2.1:1 (Corvair 2.6:1). Normal drive starts through the torque converter and low gear ratio (1.82:1) and automatically shifts to converter only.

#### ***Turboglide (Chevrolet V-8)***

This transmission consists of a five-element torque converter consisting of three turbines, a variable pitch stator and a torque converter pump. Two of the turbines are connected individually to the output shaft through the elements of two simple planetary gearsets. The stator vanes are pivoted in the vane carrier and their pitch is controlled by a hydraulic piston in response to accelerator position. The maximum torque multiplication of the converter is 4.2:1 in the high stator pitch position and 3.8 in the low position. No additional gearing other than the internal gearing between the turbines and the output shaft is provided. A hydraulic retarder is used for downhill braking.

### ***Hydra-Matic — Four Speed (Cadillac, Pontiac)***

This transmission consists of two fluid couplings and three planetary gearsets providing four forward speeds and reverse. The large fluid coupling is used for the transmission of power. The small fluid coupling acts as a clutch in the forward planetary gearset. The shifts are automatic and vary with car speed and accelerator position. Ratios are as follows: first, 3.97:1; second, 2.55:1; third, 1.55:1; and fourth, 1:1.

### ***Hydra-Matic — Three Speed (Oldsmobile, Pontiac)***

This transmission consists of a fluid coupling with a torque multiplier and two planetary gearsets providing three forward speeds and reverse. The transmission starts in low gear ratio (2.97:1). Because of the torque multiplier in the fluid coupling, the total torque multiplication at stall is 3.56:1. The transmission shifts to second gear (1.56:1) and then to direct drive.

### ***Dual Path Turbine Drive (Buick Special)***

This transmission consists of a three-element torque converter and a planetary gearset providing two forward speeds and reverse. Drive starts through the converter (2.50:1 torque multiplication) and the planetary gearset (1.58:1 ratio). The shift is then to direct drive by engaging the converter clutch. The torque is then split with 36.6% through the mechanical path and 63.4% through the converter.

### ***TempestTorque (Pontiac Tempest)***

This transmission consists of a three-element torque converter with a multiple pinion planetary gearset providing low and reverse ratios. Normal drive starts through the converter which has a maximum torque multiplication of 2.0:1 and low gear ratio (1.82:1). The upshift to high gear depends on throttle position and car speed. In direct drive torque is split 40% mechanical and 60% through the converter.

## **Studebaker-Packard Corporation**

### ***Flightomatic (Studebaker Lark and Hawk)***

This transmission is composed of a three-element torque converter and a multiple pinion compound planetary gearset to produce three forward speeds and reverse. The drive is always through the converter which has a maximum torque multiplication of 2.15:1. In the Lark VI normal drive starts through the torque converter and low gear ratio (2.40:1), shifts to torque converter plus intermediate ratio (1.47:1) and then shifts to converter only. In the Lark VIII and Hawk the transmission starts through the torque converter and intermediate gear and then shifts to converter only. Low ratio can be engaged for added acceleration by depressing the accelerator to the floor.



